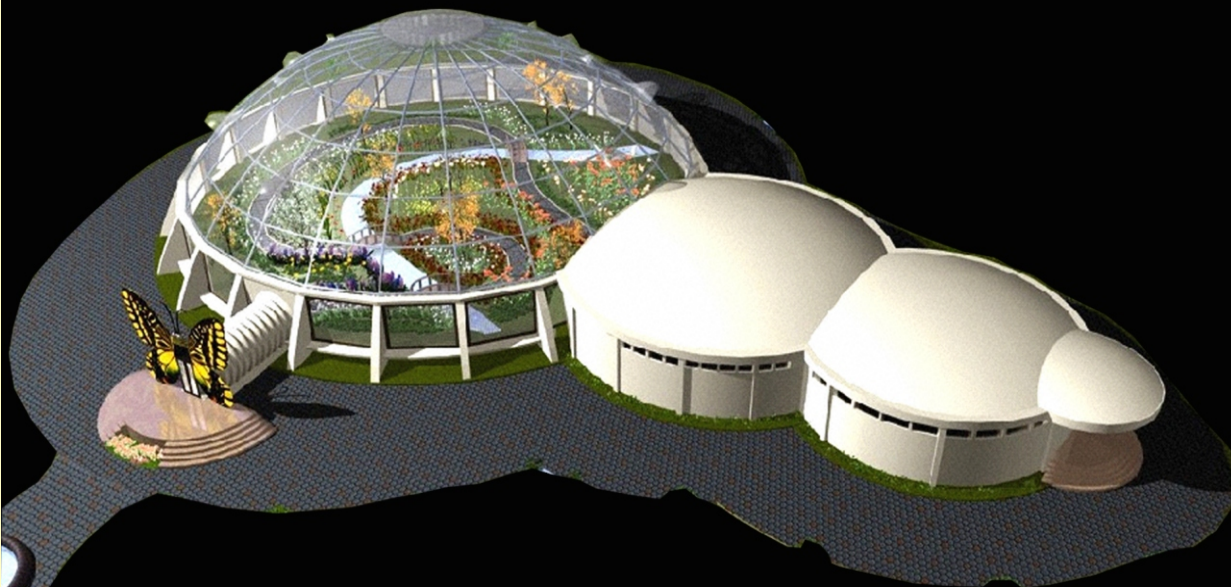




Butterfly Park

A Conservatory for the Winged Jewels

Concept, Plan and Execution



Butterfly Park
BANGALORE

Bannerghatta Biological Park,
Bangalore 560 083



Scale Model-1999

Butterfly Park

A Centre for Research, Education and Conservation
(a joint initiative of DBT, ZAK, UAS(B) and ATREE)

From Dream to Reality



The Park- 2006



A Park for Butterflies?

Our conservation conscience is motivated by charismatic animals like the tiger, the panda or an occasional orchid. Though the cause of conservation has been served well by these flagship species, it has practically blinded us to the immense diversity of other life forms. Even the ubiquitous insects which constitute more than 70 per cent of organisms are not an exception to our ignorance.

Since conservation focus is best achieved by 'flagship' species, butterflies are recognised as 'ambassadors' of insect conservation due to their aesthetic appeal particularly to children. The butterflies also play an ecologically important role as pollinators, herbivores, reservoirs of parasitoids and as indicators of environmental health. There are approximately 15,000 species of butterflies in the world and 1500 species occur in India. About 450 species of butterflies are endangered and protected by law in India.

A butterfly park, where butterflies can be seen in abundance and observed from close quarters, is expected to imbue lay persons with a better appreciation of these less charismatic but important organisms and promote research and conservation efforts.





Crafting of an Idea - The Egg...

One of the most influential scientific ideas to emerge towards the end of the 20th century was the need for conserving the rich tapestry of life- 'Biodiversity' on this planet. The strong motive for conservation was the potential of biodiversity to contribute to human welfare. The discovery of several drugs from plants and animals only made the case stronger. The isolation of the anti-cancer drug, Taxol from Pacific Yew tree, antibiotics like the 'magainin' from African frogs, anti-cancer drug from deep sea sponge, pain killer from the venom of a tropical snail, promising antibiotics like 'squalamine' from ayurvedic plants such as *Holarrhena antidysenterica* and *Chonemorpha macrophylla* fuelled intensive 'bio-prospecting' or search for drugs and other metabolites.

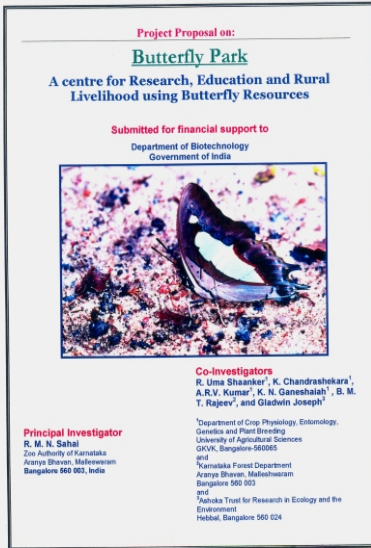
A spurt of these discoveries clearly points to our poor appreciation of the 'value' of biodiversity, and the irony- a large part of biodiversity is being destroyed even before we realize our ignorance. In fact, an appraisal by the National Bioresource Development Board (NBDB) of the Department of Biotechnology (DBT) identified insects as the next most important bioresource, after plants that had the potential to yield valuable dyes, enzymes, proteins, pain-killers and even drugs- and of course serve as food! This prompted NBDB, to draw up an action plan for exploration,

sustainable utilization, and conservation of insect resources.

A major part of this action plan comprises educational activities highlighting the importance of insects as bioresources. The establishment of a Butterfly Park to promote a greater appreciation for insects among the public is a part of the long-term vision of the Department of Biotechnology, Government of India.



...the Idea is Incubated



Facsimile of the project document

The National Bioresource Development Board, DBT, Government of India initiated action to implement the idea of establishing a butterfly park by identifying potential sites in the country. Dr. S. Natesh, then Director at DBT, wrote to the Karnataka state government in December 1999 offering technical and financial support towards establishment of a butterfly park. Considering the eco-tourism potential, DBT had also suggested Brindavan Gardens, Mysore as one of the potential sites. In the meanwhile DBT also identified the University of Agricultural Sciences(UAS), Bangalore for providing technical support for the project and requested scientists at UAS(B) to co-ordinate the efforts.

In response to DBT's request the Karnataka State Government moved quickly and by April 2000, officers of the Department of Horticulture and scientists from UAS(B) met and considered potential sites for the butterfly park. After a critical appraisal of all the sites, a team comprising Dr. S. Natesh, DBT and scientists from UAS(B) identified Bannerghatta Biological Park as the most suitable site, considering its proximity to the Bannerghatta National Park, the ideal ecological conditions for butterflies, the logistical support of the Zoo Authority of Karnataka (ZAK) and the huge tourist volume.

With the identification of the site in January 2001 the action shifted to the Karnataka Forest Department and the then Principal Chief Conservator of Forests (Wildlife), Mr. S. K. Chakrabarti pursued the idea enthusiastically with DBT and UAS(B). A detailed project was developed by the scientists of UAS(B) and the Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore with inputs from Mr. R. M. N. Sahai, Conservator, and Member-Secretary, ZAK. The multi-institutional project with Mr. Sahai as the Principal Investigator was submitted to the DBT under the Bioresources programme in September 2001.

The breathtaking Bannerghatta valley chooses itself as the location for the country's first Butterfly park!





The site in 2001 where the Butterfly Park stands today

The project was critically reviewed and several questions on the technical and financial aspects of the project were spiritedly defended and clarified by the investigators of the project. The investigators of the project also presented the proposal before the experts at the fifth steering committee meeting of the NBDB held on 12 November 2001. DBT formulated a sub-committee comprising Dr. S. Natesh, Advisor, DBT, Dr. B. Harigopal, Advisor, DST, Dr. K. Talukdar, Deputy Secretary(Finance), DBT and Dr. Sundeep Sarin, Senior Scientific Officer-I to discuss the details of the project. The committee visited the University of Agricultural Sciences, Bangalore, Ashoka Trust for Research in Ecology and Environment, Bangalore and the Bannerghatta Biological Park in January 2002 to carry out a critical assessment of the feasibility of establishing the project. The sub-committee made several suggestions on technical and financial aspects which were incorporated into the revised proposal submitted to DBT.

The National Bioresource Development Board, DBT, Government of India sanctioned the mutli-institutional project in December 2002 vide order BT/012/21/NBDB/2002 with a total outlay of Rs. 381.25 lakh.

The Zoo Authority of Karnataka identified M/s. Naik & Associates as the architects for the prestigious project.

Dr. K. Chandrashekara and Dr. A. R. V. Kumar from UAS(B) prepared a set of guidelines for the butterfly enclosure, the museum and curio shop and also the captive breeding unit underscoring the need for environmental control without the use of any external energy sources for heating and cooling. M/s. Naik and Associates offered three designs out of which one was selected by a committee comprising

Dr. S. Natesh, Mr. S. K. Chakrabarti, Mr. R. M. N. Sahai, Dr. K. N. Ganeshiah, Dr. R. Uma Shaanker, Dr. K. Chandrashekra, Dr. A. R. V. Kumar and Dr. Gladwin Joseph. The design was approved by PWD and a construction firm was entrusted responsibility to execute the work.



The Butterfly Park lies adjacent to the Bannerghatta National Park



...hatching of the Plan- The Caterpillar

The project came to life with the ground-breaking ceremony in March 2004, akin to the caterpillar breaking out of its egg-shell.

The Zoo Authority of Karnataka entrusted the task of building the park to M/s P. G Shetty Construction Technology Pvt. Ltd., Mysore, under the supervision of M/s Civil-Aid Pvt. Ltd, Bangalore, consultants to the project. The site engineer Mr. Chandrappa of the Zoo Authority of Karnataka was entrusted with monitoring the day to day work to ensure top class construction at the site. Mr. R. M. Ray, PCCF (Wildlife) and Mr. K. B. Markandaiah, then Executive Director, Bannerghatta Biological Park gave the project the much needed leadership.

Once the project kicked-off there was no looking back, the teething problems were overcome with determination. The erection of the polycarbonate roof dome proved a daunting task since the curvature gave no room for even the slightest error. The steel frames were fabricated on site and erected successfully much to the relief of everyone. The die for the RCC dome were finally cast-to complete the most novel structure ever designed for a conservation project in India.

March 2004- Construction begins



December 2004-A coliseum for butterflies!



April 2005- The die is cast for the park



...transformation within - The Chrysalis



The super structure was ready by May 2005 and looked as magnificent as any chrysalis! But the external gloss would not make for a butterfly conservatory! The park building, beautiful as it is, on the outside must undergo a transformation from inside too. The museum also needs to be established to inform and entertain the visitor.

The task of creating the largest landscaped garden under a polycarbonate roof was entrusted to Dr. Nadana Sigamani of Hariyalee Ecosystems, Bangalore. The brief was to transplant a scoop of natural forest inside the dome, brooks, streams, water-fall and the elements! Dr. K. N. Ganeshiah and Dr. R. Uma Shaanker identified six micro-habitats from sholas to fern forest habitats for diverse butterflies. Under the supervision of Mr. N. L. Raghava, ACF and Mr. B. Jayaram, Deputy Director, Bannerghatta Biological Park, the largest near natural habitat under a roof in the country was established.

By December 2005 the park had been well publicized with the citizens of Bangalore eagerly awaiting its opening. As part of project monitoring, a DBT team led by Dr. S. Natesh visited the park in May 2006 and appreciated the progress, though slightly behind schedule. At this critical stage, the project was reviewed by Mr. A. K. Varma, the new PCCF (Wildlife) and measures needed to accelerate the progress were quickly implemented under his guidance.

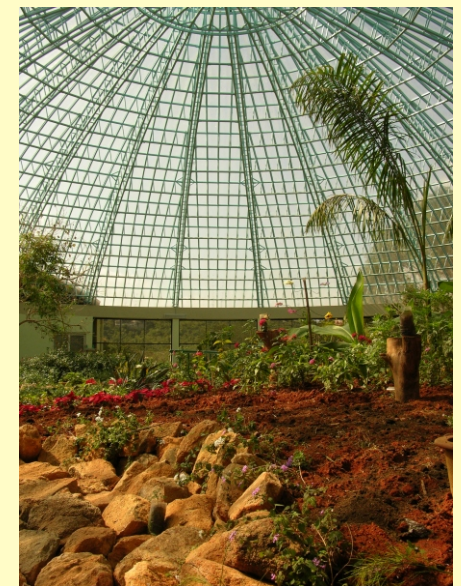
May 2005- the completed park structure



September, 2005- Plants grow at a snail's pace!



December 2005- Leaving no stone unturned for a natural landscape!





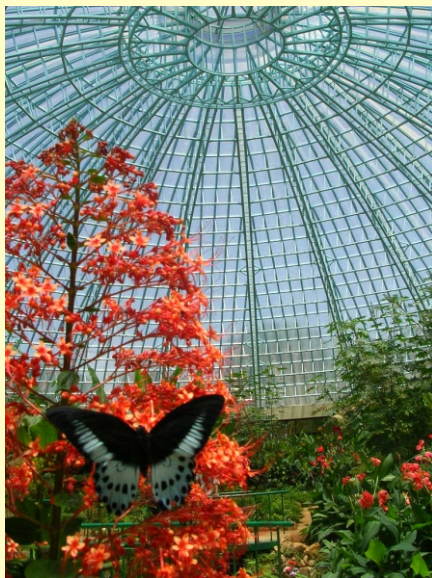
...The Butterfly Emerges

As the park was completing its establishment, the butterfly rearing unit raised more than 28,000 butterflies of 18 species between 2004 and 2006 to standardize the rearing methods. These butterflies were released in the butterfly conservatory and trial runs were completed to check out the habitat conditions for butterfly by July 2006.

The museum with graphics, dioramas, live exhibits, butterflies specimens and a computer kiosk were established in September 2006. The museum depicts the story of butterflies, their growth, development, reproduction, and their evolution. The concept and contents of the museum were developed by Dr. K. Chandrashekhara and Dr. A. R. V. Kumar, UAS(B) and Dr. Soubadra Devy, ATREE, Bangalore. The dioramas, the software for the kiosk and the museum layout and design were executed by Rustam Vania, Srishti School of Art, Design and Technology, Bangalore under the guidance of Ms. V. Geethajali Executive Director, Bannerghatta Biological Park

The project reached criticality and the park ready for inauguration in October 2006. The park is expected to grow and continuously evolve to implement novel educational and research programs on Indian butterflies.

July 2006- The park successfully undergoes trial runs



July 2006 A major part of the butterfly museum ready to enthrall the visitors



What Makes the Park Exclusive?



There are many butterfly parks in the world, each with its own appeal and reach. The Butterfly Park at Bannerghatta is however unique in many ways. The Butterfly Park will not merely exhibit butterflies for curious tourists seeking novelty but serve as a hub to actively promote environmental education, research and even explore ways of utilising butterflies resources for enhancing rural livelihoods.

This park, is perhaps the first of its kind in the world that will serve to integrate tourism, education, research and livelihood options under one roof. The park aims to, a) enhance our understanding of some of the key research issues related to butterflies as the “flagship” insect species; b) offer insights into the basic biology, life history and conservation needs to students and scientists; c) utilise butterflies as a model system for environmental education and conservation; d) explore the role of conservation activities in enhancing livelihood of rural communities and e) help in the conservation of a few endangered species of butterflies.

Unique features of the park

- Country's first butterfly park with a garden, a conservatory, a museum, a research lab and an educational centre.
- Country's largest landscaped garden under a polycarbonate roof.
- The only butterfly park which has captive breeding programme for all butterflies on display.
- Has one of the largest museum exclusively for butterflies and the only one in the country.
- Has a separate host plant garden spread over eight acres near the park.
- Energy efficient environment control-electricity is not used for either heating or cooling the butterfly enclosure and rearing units.
- Rainwater harvesting implemented on the entire park area.
- Solar lights used for backup power and external lighting.
- The butterfly park is accessible to physically disadvantaged
- A curio shop merchandizing butterfly and insect memorabilia is expected to be added very soon.

Captive breeding facility at the Butterfly Park



The Team that Realized the Dream



1. Mr. S. K. Chakrabarti, IFS
2. Dr. K. Chandrashekara, UAS, Bangalore
3. Mr. Chandrappa, Site Engineer, Bangalore
4. M/s. Civil-Aid Pvt. Ltd, Bangalore
5. Dr. K. N. Ganeshiah, UAS, Bangalore
6. Ms. V. Geethanjali, IFS, ZAK, Bangalore
7. Dr. Gladwin Joseph, ATREE, Bangalore
8. Mr. B. Jayaram, ZAK, Bangalore
9. Dr. A. R. V. Kumar, UAS, Bangalore
10. Mr. K. B. Markandaiah, IFS, KFD, Bangalore
11. Dr. Nadana Sigamani, Hariyalee Ecosystems, Bangalore
12. M/s. Naik and Associates, Bangalore
13. Dr. S. Natesh, DBT, New Delhi
14. Mr. B. M. T. Rajeev, IFS, KFD, Bangalore
15. Mr. N. L. Raghava, KFD, Bangalore
16. Mr. R. M. Ray, IFS, Bangalore
17. Dr. Renu Swarup, DBT, New Delhi
18. Mr. Rustam Vania, Srishti School of Art, Design and Technology, Bangalore
19. Mr. R. M. N. Sahai, IFS, Bangalore
20. M/s. P. G. Shetty Constructions, Mysore
21. Dr. M. Soubadra Devy, ATREE, Bangalore
22. Dr. Sundeep Sarin, DBT, New Delhi
23. Mr. R. S. Suresh, IFS, ZAK, Mysore
24. Dr. R. Uma Shaanker, UAS, Bangalore
25. Mr. A. K. Varma, IFS, KFD, Bangalore
26. Mr. D. A. Venkatesh, IFS, KFD, Mysore

Flying Together - Partners in Progress

The idea of a butterfly park as an integrated centre for research and education, with creation of awareness about the less appreciated biological resources of the country as its main goal, was mooted by the Department of Biotechnology, Government of India. The blueprint for translating this vision into reality was prepared by School of Ecology and Conservation, University of Agricultural Sciences, Bangalore (UAS-B) and Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore. With technical inputs from UAS-B and ATREE, the Zoo Authority of Karnataka, an autonomous body of the Government of Karnataka, translated the blueprint for the country's first butterfly park into reality by establishing the Butterfly Park at the Bannerghatta Biological Park, Bangalore. The project represents a successful model of multi-institutional sharing of expertise to achieve desired objectives in a cost-effective manner.



Aravind N. A.



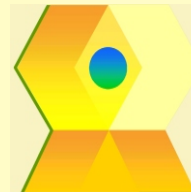
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